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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/783,552

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Joseph F. Hicklin

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EXAMINER

SKOWRONEK, KARLHEINZ R

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/783,552	<b>Applicant(s)</b> HICKLIN ET AL.	
	<b>Examiner</b> KARLHEINZ R. SKOWRONEK	<b>Art Unit</b> 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,12,13,18,19,24,25,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-11,14-17,20-23,26-29,32-35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Status***

Claims 1-39 are pending.

Claims 6, 7, 12, 13, 18, 19, 24, 25, 30, and 31 stand withdrawn as being directed to a non-elected invention.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 are being examined.

### ***Specification***

#### ***Response to Arguments***

Applicant's arguments, see remarks p. 11, filed 7 December 2007, with respect to the objections to the specification for reciting trademarks and embedded hyper links have been fully considered and are persuasive. The objection to the specification has been withdrawn in view of applicant's amendments.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This rejection has been modified as necessitated by amendment.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 rejected under 35 U.S.C. 102(a) as being anticipated by Sauro et al. (Omics: A Journal of integrative Biology, Vol. 7, No. 4, 2003, Dec 2003) and evidenced by Hucka et al. .

The claims are directed to a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

Sauro et al. show a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface (GUI) to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior (figure 11). The system implemented by Sauro et al. integrates several stand-alone programs in a way such that the inputs and outputs of each program can be exchanged with the other programs, i.e. the programs are SBW-compliant or enabled. Sauro et al. shows the integration of the programs of JDesigner, Jarnac, and SBW Meta-tool (p. 365, Applications). In figure 11 of Sauro et al, the elements of modeling component having a GUI providing means for accepting user input via a tool palette to generate a block diagram of a plurality of related chemical reactions that make a biological system. The figure also depicts an analysis

Art Unit: 1631

environment displaying the dynamic behavior of the biological system, and a simulation engine. The system of Sauro et al. integrates several different programs as components and facilitates the intercommunication of the programs to provide a dynamic, high performance framework for modeling biological systems and reaction pathways (p. 355). Figure 12 shows that in addition to depicting the model graphically, the model is also displayed as a table. Sauro et al. show that the dynamic behavior of the system is modeled using a stochastic computational model (p 355 and 364). User annotations to the graphical and tabular views is inherent to the system of Sauro et al. Evidence is seen in Hucka et al. which shows user annotations of S1 and S2 in the model in SBW-compliant Jarnac and JDesigner (figure 1 and p. 452).

### ***Response to Arguments***

Applicant's arguments filed 7 December 2007 have been fully considered but they are not persuasive. Applicant argues that Sauro et al. does not show the representation of the model in a graphical and in a tabular form. Figure 12 shows the reactions are represent in a graphical format and in a tabular format. The rejection is maintained.

The following rejection has modified as necessitated by amendment.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 rejected under 35 U.S.C. 102(b) as being anticipated by Hucka et al. (Pacific Symposium on Biocomputing Vol. 7, p.450-461, 2002).

The claims are directed to a system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

Hucka et al. show a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior (figures 1 and 2). Hucka et al. describe JDesigner, software providing a GUI to accept user commands and data (sect. 5.2). Figure 1 shows the model is represented in graphical form and in tabular form. Hucka et al. shows in figure 1 that the model further comprises annotations in the graphical and tabular views. The figure shows three windows. In the foremost window, Hucka et al. shows the output of the simulation. In the intermediate window depicted in figure 1, Hucka et al. shows a tabular view with the output variables S1 and S2, which are user annotations to the model in Jarnac. The back most window of figure 1 shows the graphical representation of the model annotated with the user annotations of the variable S1 and S2, in JDesigner. Jdesigner provides a tool palette aiding in the construction of the of a block diagram model, as is seen in figure 1 (figure 1 and p. 452). As shown in figure 1, the

Art Unit: 1631

modeling component includes a block diagram of related chemical reactions. Hucka et al. show that the simulation engine generates the dynamic behavior of the system using a stochastic computational model (p. 459, sect 5.8-9).

### ***Response to Arguments***

Applicant's arguments filed 7 December 2007 have been fully considered but they are not persuasive. Applicant argues that Hucka et al. does not show the representation of the model in a graphical and in a tabular form. Figure 1 shows representation of the model in a graphic and in a tabular form. The rejection is maintained.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 8-11, 14-17, 20-23, 26-29, and 32-35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-12, 15-18, 26-30, 33-37, and 40-43 of copending Application No. 10/783,628 in view of Hucka et al. Although the conflicting claims are not identical, they are not patentably distinct from each other.

In the instant case, the claims are directed to a system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model, the model represented in graphical and in tabular formats; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

In comparison the claims of copending Application No. 10/783,628 are drawn system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior. The method of copending Application No. 10/783,628 does not show specific steps requiring a graphical and tabular view of the model. Hucka et al. shows models displayed in both tabular and graphic views in figure 1. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of copending Application No. 10/783,628 with



Art Unit: 1631

a display of the model in a graphical and tabular view of Hucka et al. because as demonstrated by Hucka et al., the display of a model in tabular and graphical views are known techniques for displaying data that one of ordinary skill was capable of predictably applying to biological system modeling.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, and 32-35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-20, 22-27, 30-42, and 44 of copending Application No. 10/783,624. Although the conflicting claims are not identical, they are not patentably distinct from each other.

In the instant case, the claims are directed to a system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

In comparison the claims of copending Application No. 10/783,624 are drawn system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component to generate a model; a simulation engine

Art Unit: 1631

accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior. The method of copending Application No. 10/783,628 does not show specific steps requiring a graphical and tabular view of the model. Hucka et al. shows models displayed in both tabular and graphic views in figure 1. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of copending Application No. 10/783,628 with a display of the model in a graphical and tabular view of Hucka et al. because as demonstrated by Hucka et al., the display of a model in tabular and graphical views are known techniques for displaying data that one of ordinary skill was capable of predictably applying to biological system modeling.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 1631

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLHEINZ R. SKOWRONEK whose telephone number is (571)272-9047. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie A. Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1631

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

20 March 2008

/K. R. S./

Examiner, Art Unit 1631

/John S. Brusca/

Primary Examiner, Art Unit 1631